

学校编码: 10384
学号: 10420110153902

分类号__密级
UDC

廈門大學

博 士 学 位 论 文

**新型科研组织智力资本与资源整合的
系统研究**

**A Study on the system of new scientific research
institution of intellectual capital and resource integration**

曾海燕

指导教师姓名: 陈 喜 乐教授
专 业 名 称: 科学技术哲学
论文提交日期: 2015 年 4 月
论文答辩时间: 2015 年 5 月
学位授予日期: 2015 年 月

答辩委员会主席:
评 阅 人:

2015 年 5 月

厦门大学学位论文原创性声明

本人呈交的学位论文是本人在导师指导下，独立完成的研究成果。本人在论文写作中参考其他个人或集体已经发表的研究成果，均在文中以适当方式明确标明，并符合法律规范和《厦门大学研究生学术活动规范（试行）》。

另外，该学位论文为（ ）课题（组）的研究成果，获得（ ）课题（组）经费或实验室的资助，在（ ）实验室完成。（请在以上括号内填写课题或课题组负责人或实验室名称，未有此项声明内容的，可以不作特别声明。）

声明人（签名）：

年 月 日

厦门大学学位论文著作权使用声明

本人同意厦门大学根据《中华人民共和国学位条例暂行实施办法》等规定保留和使用此学位论文，并向主管部门或其指定机构送交学位论文（包括纸质版和电子版），允许学位论文进入厦门大学图书馆及其数据库被查阅、借阅。本人同意厦门大学将学位论文加入全国博士、硕士学位论文共建单位数据库进行检索，将学位论文的标题和摘要汇编出版，采用影印、缩印或者其它方式合理复制学位论文。

本学位论文属于：

- () 1. 经厦门大学保密委员会审查核定的保密学位论文，
于 年 月 日解密，解密后适用上述授权。
- () 2. 不保密，适用上述授权。

（请在以上相应括号内打“√”或填上相应内容。保密学位论文应是已经厦门大学保密委员会审定过的学位论文，未经厦门大学保密委员会审定的学位论文均为公开学位论文。此声明栏不填写的，默认为公开学位论文，均适用上述授权。）

声明人（签名）：

年 月 日

中文摘要

近代以来，由于不同时期科学背景、人性假设、价值取向、理论基础以及科技组织内在逻辑、关注重心的变化，科技组织范式随之不断出现阶段性的调整，经历“松散式”、“紧凑式”和“网络式”等范式转变。第二次世界大战之后，由于文化主义思潮的渗透、网络技术的飞速发展以及世界主要国家工业化发展和市场经济体制改革等内外因素的影响，新型科研组织作为“孵化器”的变异体于 20 世纪 50 年代开始在世界范围内萌芽和发展，并表现出强劲的创新能力，为解决从基础研究到产业化过程中产业共性技术研发及其成果转化的问题提供了有效途径。

新型科研组织作为国家创新体系中的重要组成部分，集聚着大量具备扎实专业技术和创新能力的高层次人才，具有良好的科技研发平台条件，拥有卓越的网络系统和社会关系优势。这些都是新型科研组织智力资本的重要内容，是新型科研组织创新能力的资本形态和实现载体。新型科研组织通过具体的人力资本、结构资本和网络资本的构建、利用和管理机制，以实现科技资源的获取、拓展和控制，达到各阶段资源整合的效果，进而推动组织创新能力的提升。“创新能力的提升”正是现代科技组织发展的核心目标，也是不断追求的方向。

当前，世界主要发达国家或地区都非常重视新型科研组织对产业经济发展的引领和推动作用。美国国家标准和技术研究院、德国费劳恩霍夫应用研究促进协会、日本产业技术综合研究所、韩国科学技术研究院、澳大利亚联邦科学与工业研究组织、台湾工业技术研究院等先进新型科研组织的经验都非常值得我国参考和借鉴。然而，中国新型科研组织整体发展水平参差不齐，与世界发达国家或地区新型科研组织的创新能力还存在大幅差距，企业化运行程度不高、人才资源供给不足、产学研合作网络松散等问题突出。单就福建省来说，新型科研组织发展就表现出处于职业化起步阶段、内部治理结构和管理运行机制不健全、法律法规和政府配套政策相对滞后、缺乏多元化的社会力量支持等

现象和问题。可以说，当前我国新型科研组织的发展现状和特点使得我们深入加强对新型科研组织的理论和实践研究提供了现实的迫切性和必要性。而如何从新型科研组织智力资源与资源整合相互作用的理论研究思路的角度，去指导组织创新能力的提升，则是本文研究的重点和意义所在。

关键词：新型科研组织；智力资本；资源整合；创新能力；系统研究

Abstract

In modern times, the change of scientific background, humanistic hypothesis, value orientation, theoretical basis, internal logic of scientific organization and focus of attention at different times has been constantly bringing periodical adjustment to the paradigm of modern science and technology organization from “Loose”, “compact”, and “network”. After the Second World War, the new type of scientific research organizations have sprout and developed as a mutant of “incubator” because of the influence of internal and external factors such as the Culturalism ideological trend, the rapid development of the network and the industrialization development and reform on the market economy system in major countries of the world, which has shown forceful innovation ability for effectively solving problems in common technology research and development and its achievements during the process from basic research to industrialization.

The new type of scientific research organizations, a major part of the national innovation system, are gathering a large amount of high-level talented individuals equipped with sound professional skill and innovation ability due to its favorable scientific research and development platform, remarkable network system and superiority of social relations. These are an important part of the intellectual capital to new type of scientific research organizations, and these are also the form of capital and the realization carrier of the innovation ability to new type of scientific research organizations. Realizing the obtainment, development and control of the scientific resources through the mechanism of building, using and managing the specific human capital, structure capital, and network capital to achieve the desired effect of resource integration in different stages and the improvement of the organizational innovation ability. “The improvement of innovation ability” is the core objective and the continuous pursue to the development of the modern science and technology organization.

Currently, the main developed countries or regions of the world pay much attention to the leading and promoting effect of new type of scientific research organizations on the industrial economy development. The experience of advanced new type of scientific research organizations such as the National Institute of Stand-

ards and Technology, the Fraunhofer-Gesellschaft, the National Institute of Advanced Industrial Science and Technology, KOREA Institute of Science and Technology, Commonwealth Scientific and Industrial Research Organization, and Taiwan Industrial Technology Research Institute deserves our reference. However, the overall development of Chinese new type of scientific research organizations varies, and there is still a large distance on innovation ability from the main developed countries or regions, also, the problems such as low degree of enterprise operation, the insufficiency of human resources, the loose network of industry-university-research cooperation are outstanding. In terms of Fujian Province, new type of scientific research organizations have shown the phenomenon and problem of staying in a fledging period of professionalism, the unsound of the inner management structure and management operation mechanism, the lag of laws, regulations and policies, and the lack of diversified social support. So we can say that, the current develop situation and features of our new type of scientific research organizations urge us to deepen and reinforce the research on the theory and practice of new type of scientific research organizations. How to guide the improvement of organizational innovation ability from the point of interaction of intellectual resources and resource integration of new type of scientific research organizations will be the focus and significance of this paper.

Key Words: new type of scientific research organizations; intellectual capital; resource integration; innovation ability; system study

目 录

绪 论.....	1
第一章 近现代科技组织的范式转变	16
第一节“松散式”范式	17
一、科研人员数量较少，科研资金缺乏	17
二、科技组织内部信息机制不畅通，成果发布平台稀缺	18
三、科技组织结构趋于聚合，科技资源得以整合	19
四、小结	20
第二节“紧凑式”范式	20
一、践行理性优先，效率至上的价值原则	21
二、科研职业化完成，国家成为资助主体	21
三、科技组织信息机制不断完善，非正式组织协调、凝聚作用增强	22
四、刚性化组织结构形成，科研自主权进一步弱化	23
五、小结	24
第三节“网络式”范式	25
一、践行价值理性，注重管理实践	25
二、科技人员流动性增强，创新性学习成为主流	26
三、科技组织社会协作程度增强，信息沟通与共享机制建立	28
四、构建柔性组织结构，提高资源配置效率	29
五、小结	31
第二章 新型科研组织：走向现代科研院所的新范式.....	32
第一节 新型科研组织的缘起.....	32
一、文化主义：科研人员实现自我价值的超越	33
二、网络技术：科研组织结构转向“扁平网状化”	35
三、再工业化：“产学研”三位一体的科研合作关系	37
第二节 新型科研组织的内涵特征.....	39

一、组织非营利性质，助力产业结构升级	40
二、侧重共性技术研发，填补“死亡谷”	42
三、企业成为组织科研成果使用和服务的对象	45
四、强调对科研人才的授权管理	47
五、实行企业化与市场化的组织运行模式	48
六、注重开放性与国际性的柔性关系管理	49
第三节 结构洞视野下新型科研组织在国家创新体系中的作用	50
一、填补创新网络结构洞，改善结构性缺陷	51
二、架起弱关系创新主体间的桥梁，促进资源优化配置	53
三、发挥结构洞的信息优势与控制优势，提高创新效率	55
第三章 智力资本与资源整合：提升新型科研组织创新能力的新引擎	66
第一节 新型科研组织的智力资本	66
一、智力成为资本的可能性和必然性	66
二、新型科研组织智力资本及其维度	69
第二节 新型科研组织的资源整合	71
一、新型科研组织资源整合的内涵	71
二、新型科研组织资源整合的层次分析	73
第三节 智力资本、资源整合与新型科研组织的创新能力	75
一、提升新型科研组织创新能力的意义与价值	75
二、智力资本为提升组织创新能力提供实现载体	77
三、资源整合为提升组织创新能力提供有效途径	79
第四章 新型科研组织人力资本与资源整合	81
第一节 新型科研组织人力资本投入与资源整合	82
一、“整团引进”解决初期技术难题，促进组织“负熵”增加	83
二、以“项目育才”方式，实现组织“SECI”螺旋循环	85
第二节 新型科研组织人力资本利用与资源整合	87
一、人才共享推动产学研合作，实现智力资源的流动	87

二、强调产权和情感激励对知识共享的作用，提升组织凝聚力	90
三、科学评价促进人力资本利用，为组织资源分配提供依据	93
第三节 新型科研组织人力资本管理与资源整合	95
一、衍生创业促进人才主观能动性的发挥，提高整合外部资源效率	95
二、注重“终身学习”，保持组织的开放性与先进性	97
小结	99
第五章 新型科研组织结构资本与资源整合	100
第一节 新型科研组织结构资本构建和资源整合	101
一、组织治理结构彰显民主，突出放权，有利于组织企业化运行 ...	102
二、研发服务单元以需求为导向，柔性优化科技资源	105
第二节 新型科研组织结构资本利用和资源整合	108
一、完善的专利制度激励科研创新，加速知识传播与扩散	109
二、公正科学的科研评估制度践行目标管理与绩效管理的统一	112
三、以项目承载业务流程，实现技术研发与增值服务的无缝对接 ...	114
第三节 新型科研组织结构资本管理与资源整合	119
一、创新氛围影响创新行为，为组织注入学习动能	120
二、团队精神挥洒个性才华，促进协同合作，凝聚向心力	122
小结	124
第六章 新型科研组织网络资本与资源整合	125
第一节 新型科研组织网络资本构建与资源整合	126
一、异质性成员选择换来创新绩效的提高和知识的集成化	126
二、信息网络化降低资源搜索成本，促成组织扁平化管理	128
第二节 新型科研组织网络资本利用与资源整合	130
一、联盟实现产学研合作间的协同创新发展	131
二、技术入股促成科研与市场主体间的协同创新发展	133
三、“整体打包”促使组织与产业界的协同创新发展	135
第三节 新型科研组织网络资本管理与资源整合	136
一、心理契约增进网络信任与合作，实现突破性创新	137

二、组织学习提升无形资本的吸收能力，完善学习型组织建设	139
小结	141
第七章 提升新型科研组织创新能力的对策研究	142
第一节 中国新型科研组织的发展现状	142
一、中国新型科研组织发展的特点及成效	142
二、中国新型科研组织发展过程中存在的问题分析	149
第二节 福建省新型科研组织发展状况分析	154
一、处于职业化起步和准专业化阶段，综合实力较弱	154
二、内部治理结构和管理运行机制不健全，自我造血能力低下	156
三、法律法规和政府配套政策滞后，存在体制壁垒	158
四、缺乏多元化的社会力量支持，科技融资渠道不畅	159
第三节 新型科研组织创新能力提升的对策建议	160
一、创新体制，提升智力资本管理能力	161
二、加大扶持，加强政府对智力资本的培育	163
三、优化环境，拓展智力资本的发展空间	166
结 语	169
参考文献	170
致 谢	178

Contents

The introduction.....	1
Chapter 1 Modern science and technology organization paradigm shift	16
Section 1 "Loose" paradigm	17
1. The scientific research personnel quantity is less, & lack of scientific research funds	17
2. The information mechanism is not smooth, led to the scarce mechanism of information release	18
3. The organization structure tending to aggregate, & the resources to integrate	19
4. Summary.....	20
Section 2 "Compact" paradigm	20
1. The rational taking priority over, the highest principle of the value of efficiency	21
2. The technical professional completed, the country become the principal's body	21
3. The information system constantly improving, the informal organization enhanced coordination & cohesion function	22
4. The rigid organization structure formed, the scientific autonomy to be weaken further	23
5. Summary	24
Section 3 "Network" paradigm	25
1. To practice the value rationality, to pay attention to management practice	25
2. The enhancement of science and technology personnel liquidity, creative learning into the mainstream	26
3. The enhancement of the social collaboration degree, communicating and sharing of information mechanism established	28

4. To build the flexible organizational structure, to improve the efficiency of resource allocation.....	29
5. Summary	31
Chapter 2 The new type of scientific research organizations:towards a new paradigm of modern scientific research institutes.....	32
Section 1 The origin of the new type of scientific research organizations ...	32
1. Culture: scientific research personnel to realize the self-worth	33
2. Network technology: the scientific research organization structure to "flat mesh"	35
3. Re-industrialization: the cooperation relations of the trinity of scientific, research, & production	37
Section 2 The connotation and characteristics of the new type of scientific research organizations	39
1. The non-profit organization, the power industrial structure upgrade	40
2. The focus on generic technology research and development, fill the "valley of death"	42
3. The enterprises getting organization's scientific research use and service	45
4. To emphasize the authorization management of scientific research personnel	47
5. The organization operation mode of enterprise and market	48
6. The flexible relationship management of openness and international	49
Section 3 The role of the new type of scientific research organizations from perspective of structural hole in the national innovation system ...	50
1. To fill the innovation network structure hole, improving the structural defects	51
2. To build the bridge of weak relationship between innovation subjects, to promote the optimum distribution of resources	53
3. To play the information advantage and control advantage of the structural hole, improving the efficiency of innovation	55

Case study: based on the knowledge mapping of domestic scientific research organizations' research hot topic analysis	58
Chapter 3 Intellectual capital and Resource integration:to promote the new type of scientific research organizations of innovation ability of the new engine.....	66
Section 1 The intellectual capital	66
1. The intelligence becoming the possibility and necessity of capital ..	66
2. The intellectual capital of the new type of scientific research organizations and its dimensions	69
Section 2 The integration resources of the new type of scientific research organizations.....	71
1. The connotation	71
2. The hierarchical analysis	73
Section 3 Intellectual capital, resource integration and the new type of scientific research organizations' innovation ability	75
1. The meaning and value	75
2. The intellectual capital to promote the innovation ability of the organization to provide carrier	77
3. Resource integration to promote the innovation ability of the organization to provide effective way	79
Chapter 4 Human capital and Resource integration	81
Section 1 Human capital investment and resource integration	82
1. "The whole group to introduce" early to solve technical problems, promote the organization "negative entropy"	83
2. By Project training, realize the organization"SECI"spiral cycle	85
Section 2 Resource integration and utilization of human capital	87
1. The talent promoting production-study-research cooperation, achieve the flow of intellectual resources	87
2. The emphasis on the role of property rights and emotion motivation for knowledge sharing, to promote the cohesion of the organization	90

3. Promoting human capital utilization, provide the basis for distribution of organizational resources by scientific evaluation ...	93
Section 3 Human capital management and resource integration	95
1. Promote talent play to subjective initiative in the business, enhance the efficiency of integration of external resources	95
2. "Lifelong learning", keeping the openness and advanced nature of the organization	97
Summary	99
Chapter 5 Structure capital and Resource integration.....	100
Section 1 Structure capital building and resource integration	101
1. The prominent democracy, decentralization, to enhance enterprise running	102
2. The R&D services unitflexible optimization of resources of science and technology by demand oriented	105
Section 2 Structure capital utilization and resource integration	108
1. Perfecting the patent system to stimulate research innovation, accelerate the knowledge dissemination and diffusion	109
2. Fair, scientific research assessment system fulfilling the unity of objective management and performance management	112
3. To the project carrying business process, realize the seamless joint between technology development and value-added services	114
Section 3 Capital management and resource integration	119
1. Innovation atmosphere influence behavior, to the kinetic energy for organization	120
2. The writing individuality talented team spirit, promote cooperation, condensed centripetal force	122
summary	124
Chapter 6 Network capital and resource integration.....	125
Section 1 Network capital construction and resource integration	126
1. Heterogeneity member choosing for the improvement of innovation performance and knowledge integration	126

Degree papers are in the “[Xiamen University Electronic Theses and Dissertations Database](#)”. Full texts are available in the following ways:

1. If your library is a CALIS member libraries, please log on <http://etd.calis.edu.cn/> and submit requests online, or consult the interlibrary loan department in your library.
2. For users of non-CALIS member libraries, please mail to etd@xmu.edu.cn for delivery details.

厦门大学博硕士论文摘要库